Science Societies

Development of climate-resilient, nutritionally improved wheat

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Newly germinated winter wheat line in this study. Photo courtesy of Lynn Veenstra.

Fructans are naturally occurring plant polymers composed of fructose molecules. They are found in approximately 15% of flowering plant species, including wheat (*Triticum aestivum* L.). Fructans serve important physiological roles in plant stress tolerance as well as in human diets. Given the importance of wheat in diets across the world, targeting increases in wheat fructan levels through breeding would facilitate the development of climate-resilient, nutritionally improved wheat cultivars.

New research in *Crop Science* reports on the effectiveness of breeding methodologies in developing winter wheat cultivars with increased fructan while minimizing phenotyping requirements.

The researchers found that development of wheat cultivars with increased fructan levels (range: 25–34%) was possible with methodologies that also reduce phenotyping requirements and maintain genetic diversity in populations.

The ability of researchers to develop wheat cultivars with increased fructan levels using the described methodology serves as an important proof of concept that these methodologies can be utilized in breeding for any phenotype-intensive traits, particularly in the development of nutritionally improved crops.

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Veenstra, L.D., Poland, J., Jannink, J.-L., & Sorrells, M.E. (2020). Recurrent genomic selection for wheat grain fructans. *Crop Science*, *60*.
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